

1969

OPERATING
SUMMARY

TIMMINS

*water pollution
control plant*

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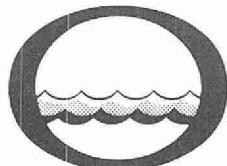
Division of Plant Operations

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Water management in Ontario

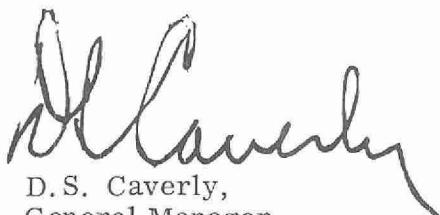
Ontario
Water Resources
Commission

135 St.Clair Ave.W.
Toronto 195
Ontario

The operating efficiency and financial status of the water pollution control facilities operated for you in 1969 are presented in the following pages.

The regional operations engineer's comments and the statistical data will assist you in gauging the plant's level of performance. A new flow chart and up-to-date design data are also provided.

Various divisions and sections within the Commission have co-operated in providing what we trust is an accurate and concise annual operating summary.



D. S. Caverly,
General Manager.



D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

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TIMMINS

water pollution control plant

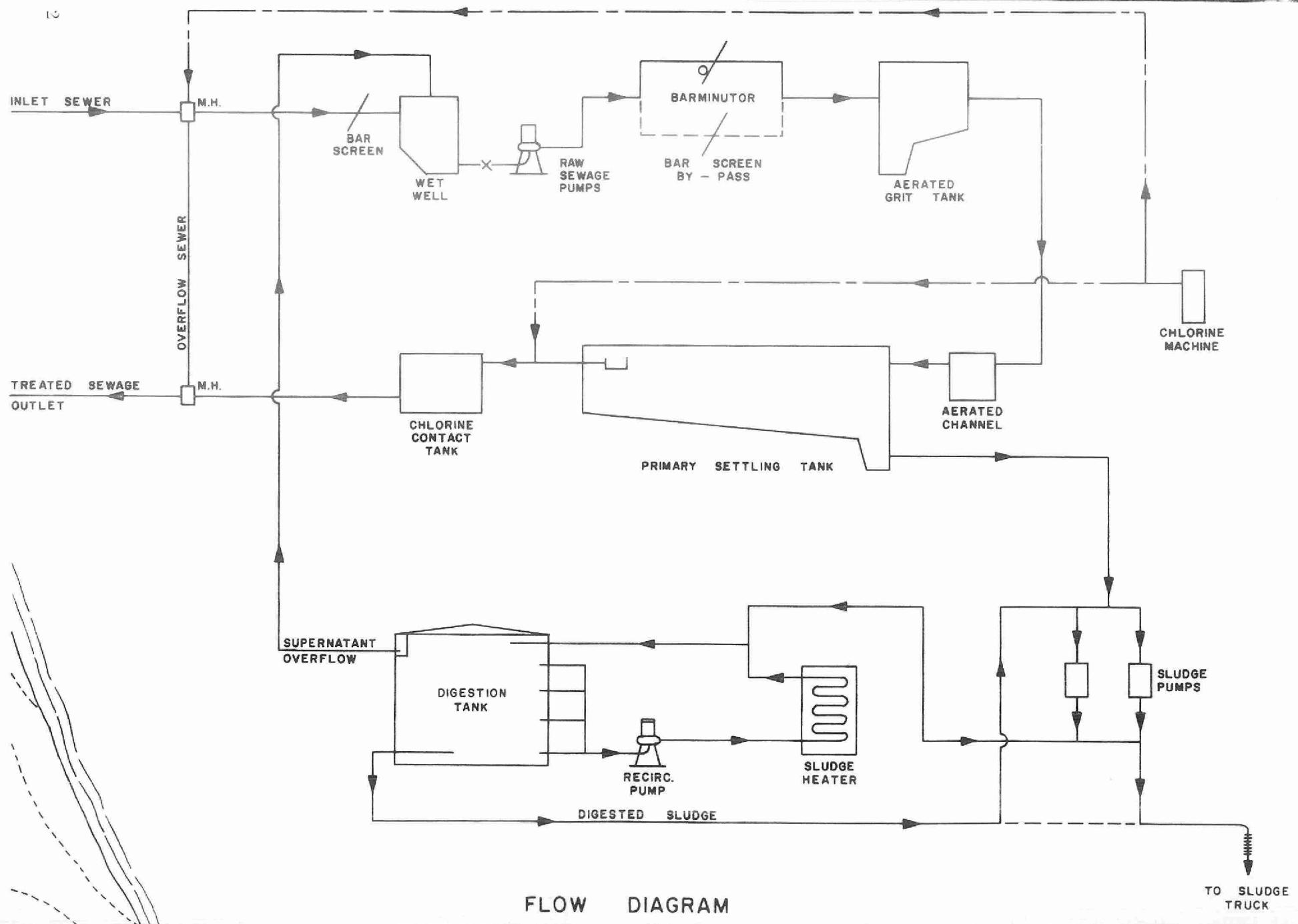
operated for

THE TOWN OF TIMMINS

by the

ONTARIO WATER RESOURCES COMMISSION

1969 ANNUAL OPERATING SUMMARY



DESIGN DATA

PROJECT NO.	2-0071-60	TREATMENT	Primary
DESIGN FLOW	3.0 mgd	DESIGN POPULATION	30,000
BOD - Raw Sewage - Removal	180 mg/l 35-40%	SS - Raw Sewage - Removal	200 mg/l 60-65%

RAW SEWAGE PUMPS

Screening

Type: Manually cleaned
Size: 2" opening

Pumps

Type: Worthington
Size: One 3650 gpm @ 26' tdh
One 3120 gpm @ 26' tdh
One 3120 gpm @ 26' tdh (diesel)

PRIMARY TREATMENT

Comminution

Type: Chicago Pump Barminutor
Size: One Model C (36")

Grit Removal

Type: Aerated
Size: One 13' x 18 3/4' x 12 1/2' (19,000 gal)
Retention: 9.1 min
Air Supply: Two Sutorbilt

Primary Sedimentation

Type: Jeffrey
Size: Two 125' x 20' x 12' (avg)
(374,000 gal)
Retention: 3.0 hr
Loading: Surface, 600 gal/ft²/day
Weir, 9900 gal/ft/day

CHLORINATION

Type: F & P
Size: One 2,00 lb/day

Chlorine Contact Chamber

Size: Two 47 1/2' x 7' x 9' 7" (37,400 gal)
Retention: 19 min

OUTFALL

- to Mattagami River

SLUDGE HANDLING

Digestion System - single-stage, concrete
Type: PFT (gas mixed)
Size: One 65' dia x 24' swd (80,000 cu ft
or 0.50 mil gal)
Loading: 1.35 lb/cu ft/mo

'69 REVIEW

GENERAL

The Timmins plant is a three million gallon per day primary treatment facility. The treated effluent is discharged to the Mattagami River downstream of Timmins.

The project is operated by a chief operator and two operators.

Considerable difficulty was experienced in cold weather with breakdown of the sludge collectors and ice formation on the clarifiers.

The interior of the control building was painted and this has greatly improved its appearance. The raw sewage pumps were rebuilt, and the proposed gas mixing equipment for the digester is expected to be installed in 1970.

EXPENDITURES

The operating cost for the year was \$59,394.86, an increase of \$5,208.31 from the 1968 operating cost of \$54,186.55. This increase was mainly due to sludge hauling costs and payroll. The unit cost of treating one million gallons in 1969 was \$56.57, compared with \$53.00 in 1968.

PLANT FLOWS and CHLORINATION

In 1969, the plant treated an average flow of 2.9 mgd, very near the design capacity of 3 mgd. The design flow was exceeded 30 percent of the time; however, the wet weather design capacity of 9 mgd was not exceeded during the year. April was the peak month, although very high flows were sustained throughout the summer and fall. The final effluent was disinfected with 29,285 lbs. of chlorine between May 16 and October 31 to give a residual of 0.5 milligrams per litre after 15 minutes.

PLANT EFFICIENCY

The average raw sewage BOD and suspended solids concentrations were 241 mg/l and 349 mg/l respectively. This represents a considerable increase in loading compared with previous years. Average BOD and suspended solids reduction efficiencies were 76 and 85 percent, and represent very good treatment for a primary facility. A total of 2,969 cubic feet of grit was removed from the raw sewage. This total represents an average of 2.8 cubic feet of grit per million gallons of sewage treated.

SLUDGE DIGESTION and DISPOSAL

A total of 11,080,000 gallons of raw sludge was pumped to the digester. The raw sludge averaged 2.8 percent total solids, 70 percent of which was volatile matter. Digested sludge averaged 5.2 percent total solids, of which 50 percent was volatile matter. A total of 2,330,000 gallons of digested sludge was hauled from the digester by tank truck.

CONCLUSIONS

The project is operating very efficiently at average flows of 2.9 mgd. The design capacity of 3.0 mgd is conservative and good treatment can be expected up to average flows of 4.0 mgd.

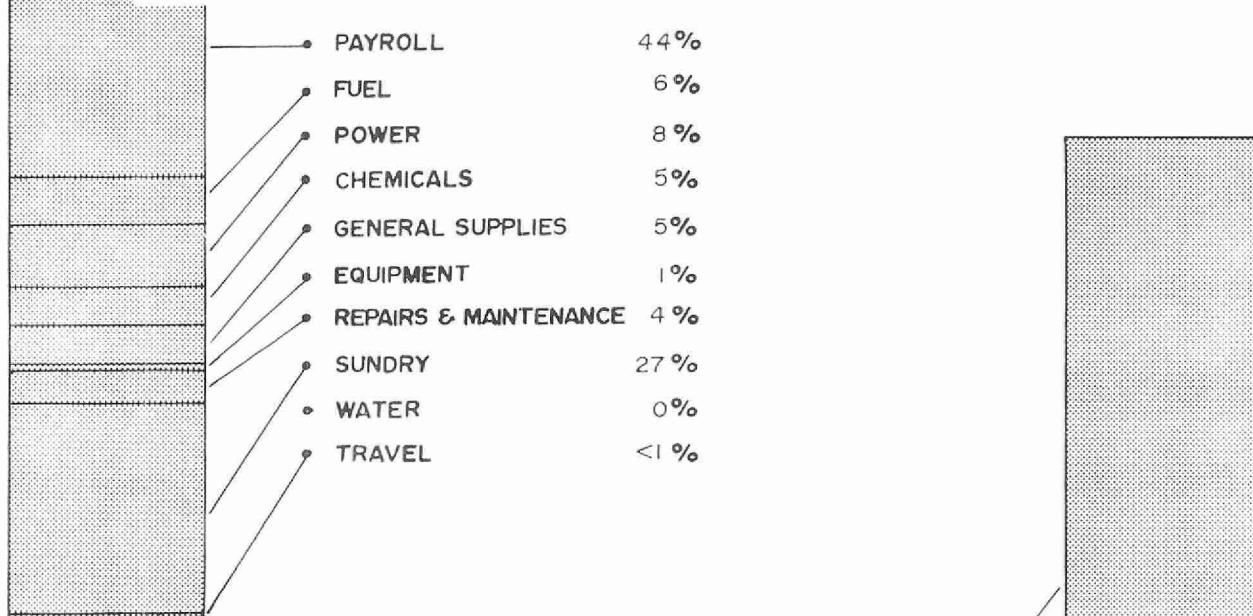
PROJECT COSTS

NET CAPITAL COST (Final)	\$785,370.12
DEDUCT - Portion financed by CMHC/MDLB (Final)	<u>521,108.36</u>
Long Term Debt to OWRC	<u>\$264,261.76</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1969	\$ <u>54,944.68</u>
Net Operating Debt Retirement Reserve Interest Charged	\$ 59,394.86 9,587.00 4,415.42 <u>14,794.66</u>
TOTAL	\$ <u>88,191.94</u>

RESERVE ACCOUNT

Balance @ January 1, 1969	\$ 18,156.58
Deposited by Municipality	4,415.42
Interest Earned	<u>1,128.38</u>
	\$ 23,700.38
Less Expenditures	<u>-</u>
Balance @ December 31, 1969	\$ <u>23,700.38</u>

1969 OPERATING COSTS



TOTAL ANNUAL COST

NET OPERATING

67 %

DEBT RETIREMENT

11 %

INTEREST

17 %

RESERVE FUND

5 %

Yearly Operating Costs

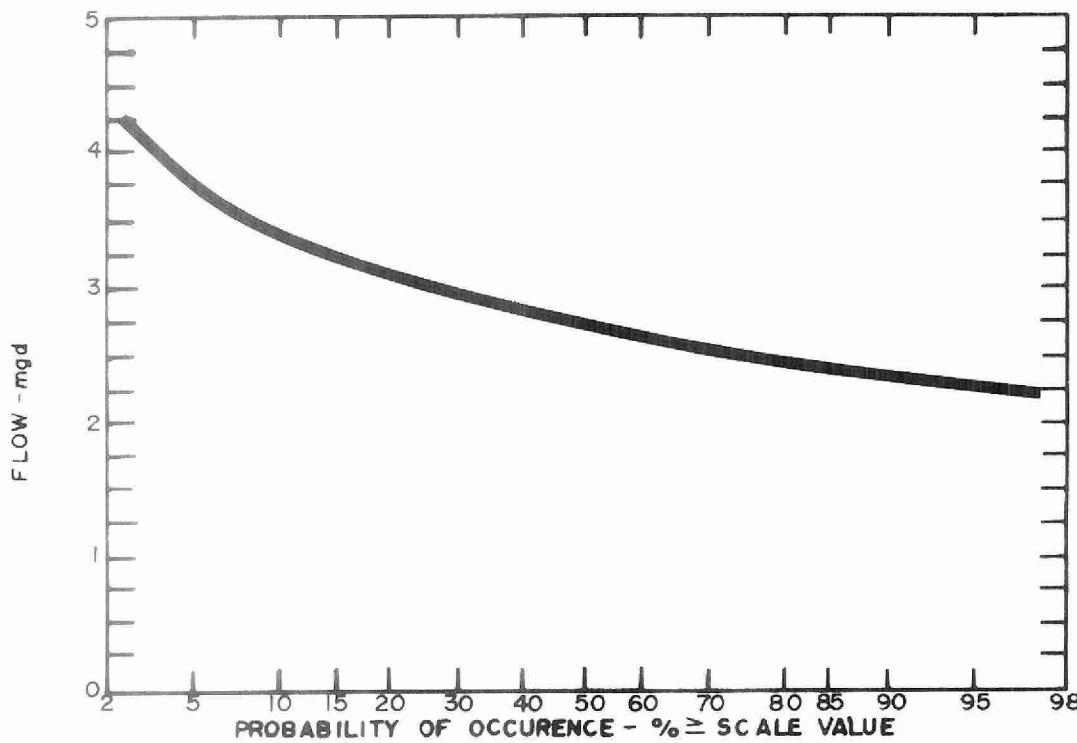
YEAR	MILLION GALLONS TREATED	TOTAL OPERATING COSTS	COST PER MILLION GAL	COST PER LB OF BOD REMOVED
1965	1061.3	\$31,001.30	\$29.21	3 cents
1966	1131.0	31,647.82	27.93	2 cents
1967	1144.8	59,857.94	52.28	6 cents
1968	1020.0	54,186.55	53.00	6 cents
1969	1049.9	59,394.86	56.57	3 cents

Monthly Operating Costs

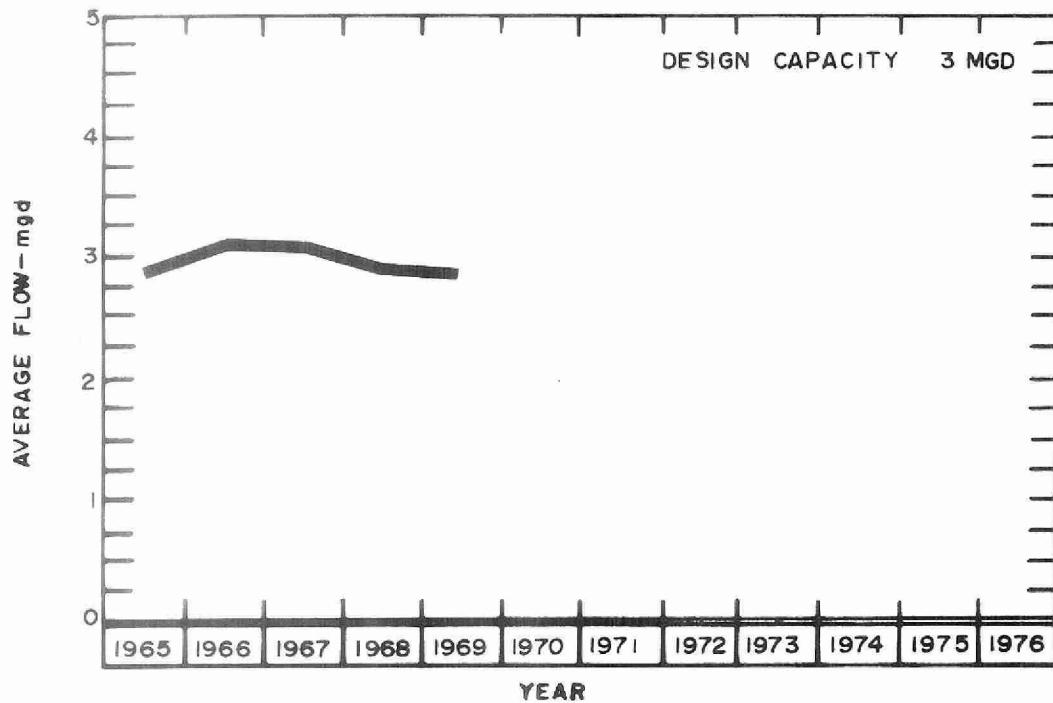
MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY *	WATER	TRAVEL
JAN	4141.22	2672.73	737.36	228.20	441.45	-	9.43	27.47	-	24.58	-	-
FEB	4772.59	1667.86	365.17	409.95	335.16	-	243.93	-	167.57	1582.95	-	-
MAR	5953.74	1616.30	322.63	244.50	398.36	-	65.02	42.00	765.89	2499.05	-	-
APR	3122.26	1829.96	297.17	273.03	412.72	-	184.32	-	64.96	60.10	-	-
MAY	6287.95	2045.68	328.72	480.85	397.39	218.52	492.53	-	438.27	1721.99	-	164.00
JUNE	5200.40	1687.92	329.32	523.56	368.06	-	83.68	-	222.80	1985.06	-	-
JULY	5500.64	1725.87	363.13	81.50	-	1425.90	298.75	70.82	69.92	1464.75	-	-
AUG	5439.99	2573.16	435.78	187.70	447.17	-	195.16	51.59	124.62	1444.81	-	-
SEPT	5825.31	1679.55	275.19	105.24	659.18	1344.00	196.06	567.57	53.07	945.45	-	-
OCT	4200.76	1694.32	72.92	112.26	369.47	-	442.26	50.44	40.56	1418.53	-	-
NOV	2677.80	1777.99	-	103.29	344.74	-	115.21	-	181.48	97.09	-	58.00
DEC	6252.20	1715.07	-	788.14	347.71	-	423.77	-	-	2827.64	-	149.87
TOTAL	59394.86	22686.41	3527.38	3538.22	4521.41	2988.42	2750.12	809.89	2129.14	16072.00	-	371.87

* SUNDRY INCLUDES SLUDGE HAULAGE COSTS WHICH WERE \$14,216.12

PROCESS DATA



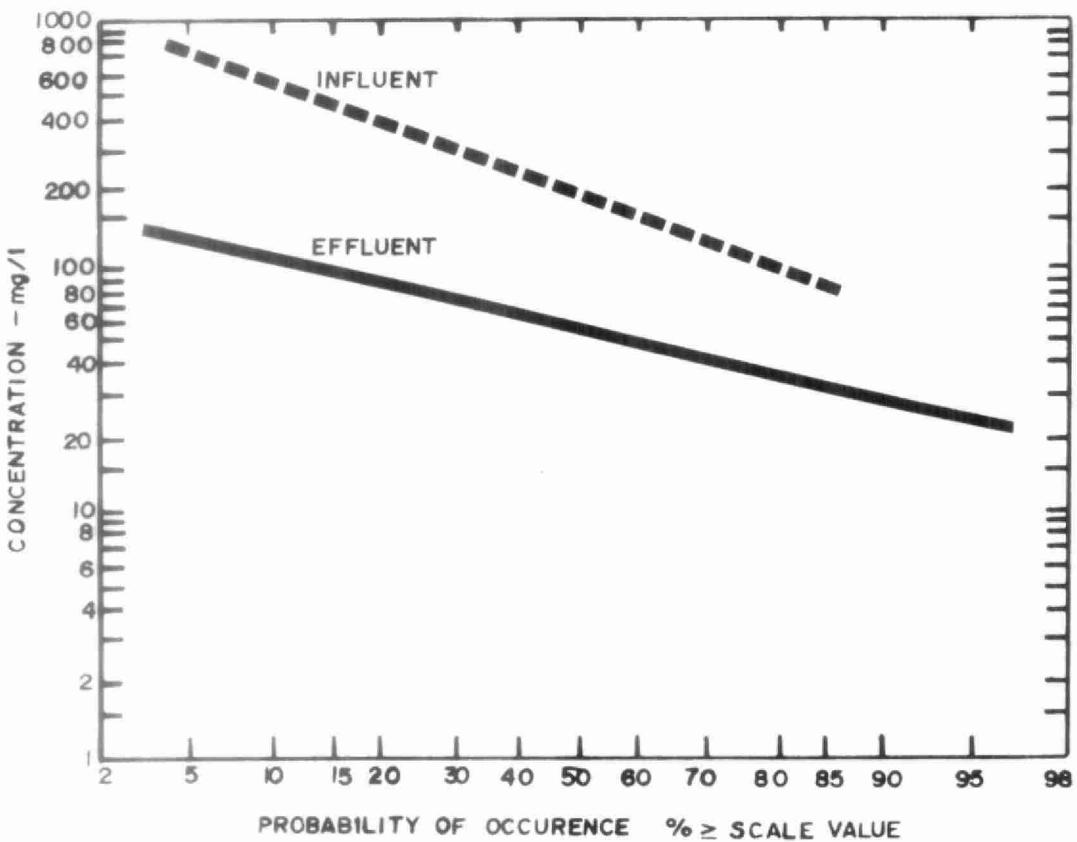
FLows



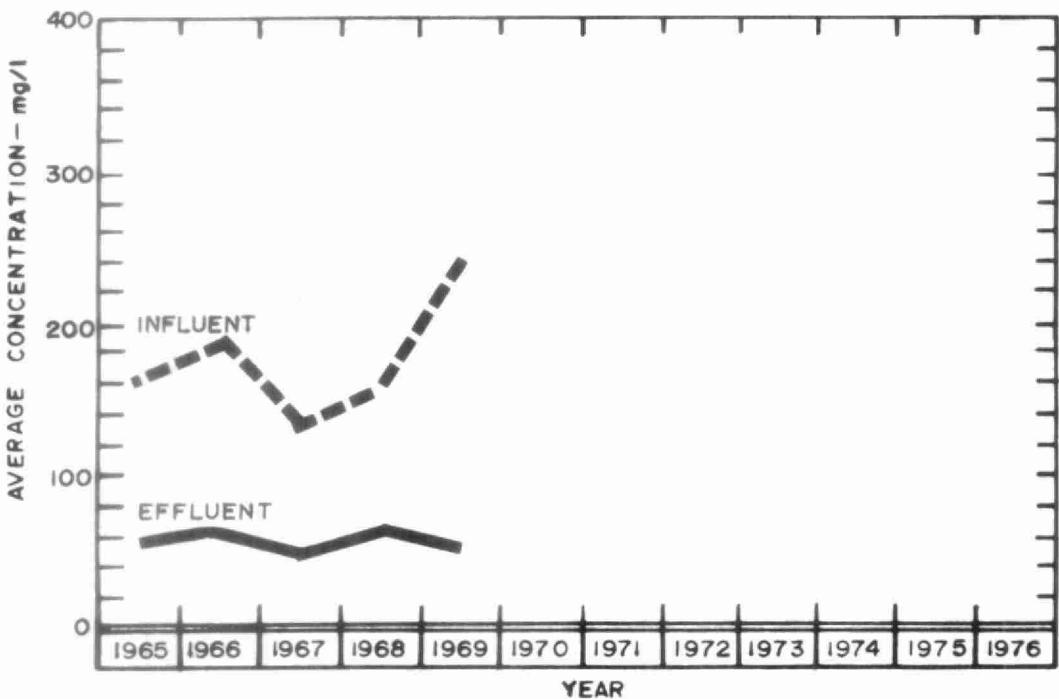
PLANT FLOWS and CHLORINATION

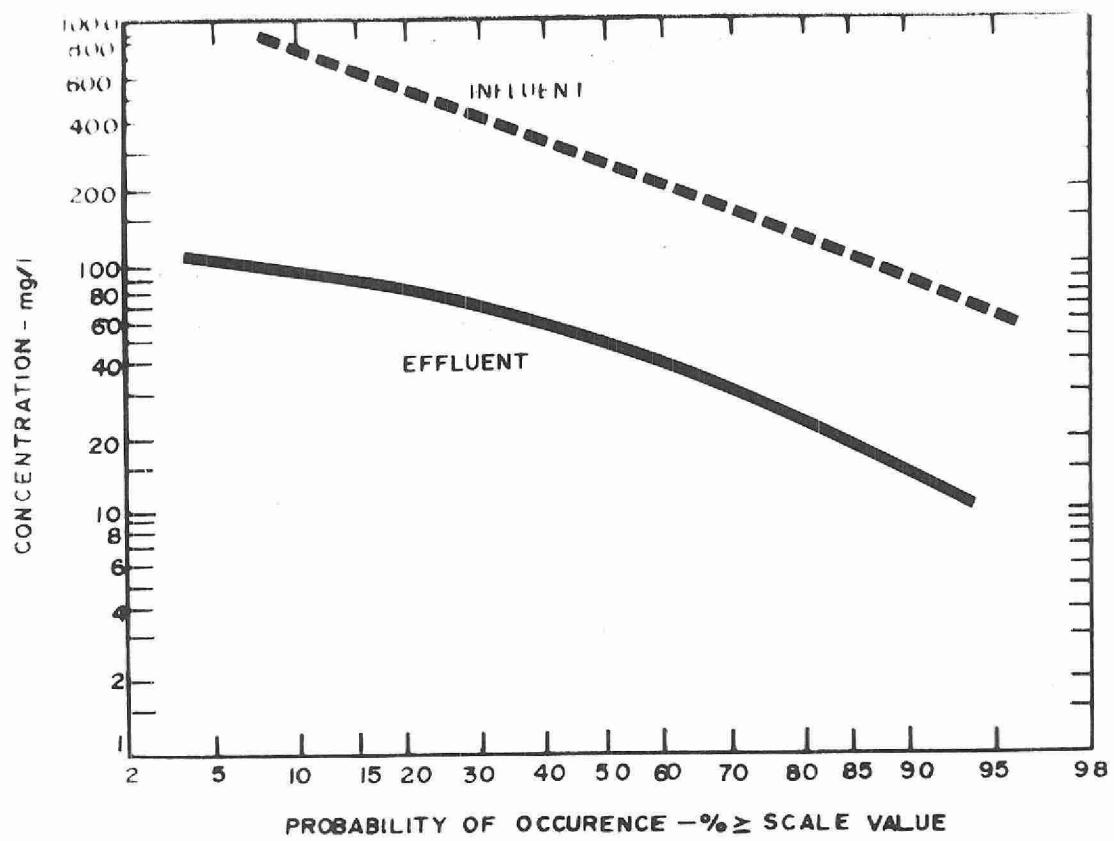
MONTH	TOTAL FLOW mil gal	AVERAGE DAILY FLOW mil gal	MAXIMUM DAILY FLOW mil gal	MINIMUM DAILY FLOW mil gal	CHLORINE USED 10^3 pounds	DOSAGE mg/l
JAN	76.5	2.5	3.5	2.1	0	0
FEB	71.3	2.6	2.9	2.2	0	0
MAR	77.5	2.5	2.8	2.2	0	0
APR	112.2	3.7	5.1	2.4	0	0
MAY	92.7	3.0	5.2	2.3	2.28*	5.1
JUNE	91.3	3.0	4.2	2.6	4.63	5.1
JULY	89.3	2.9	3.5	2.5	5.64	6.3
AUG	89.6	2.9	3.4	2.6	5.07	5.6
SEPT	82.3	2.7	3.0	2.5	5.43	6.6
OCT	93.9	3.0	4.0	2.5	6.23*	6.6
NOV	93.5	3.1	3.8	2.3	0	0
DEC	79.8	2.6	2.9	2.4	0	0
TOTAL	1049.9	-	-	-	29.28	-
AVERAGE	-	2.9	-	-	4.88	6.0

*Chlorination started on May 16 and discontinued October 31

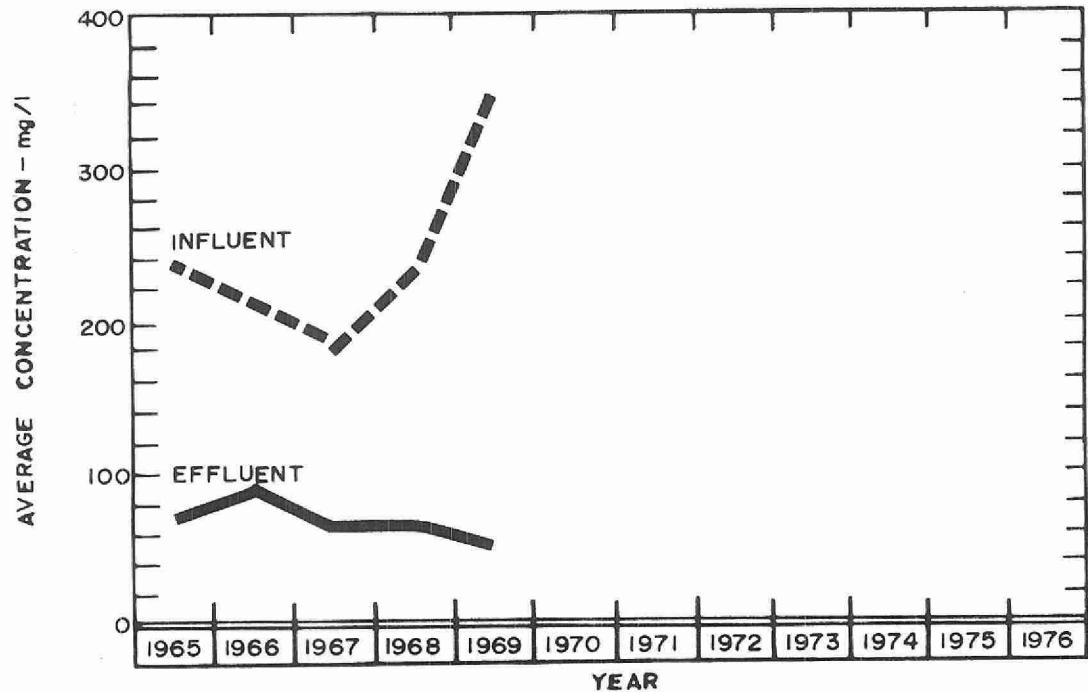


BIOCHEMICAL OXYGEN DEMAND



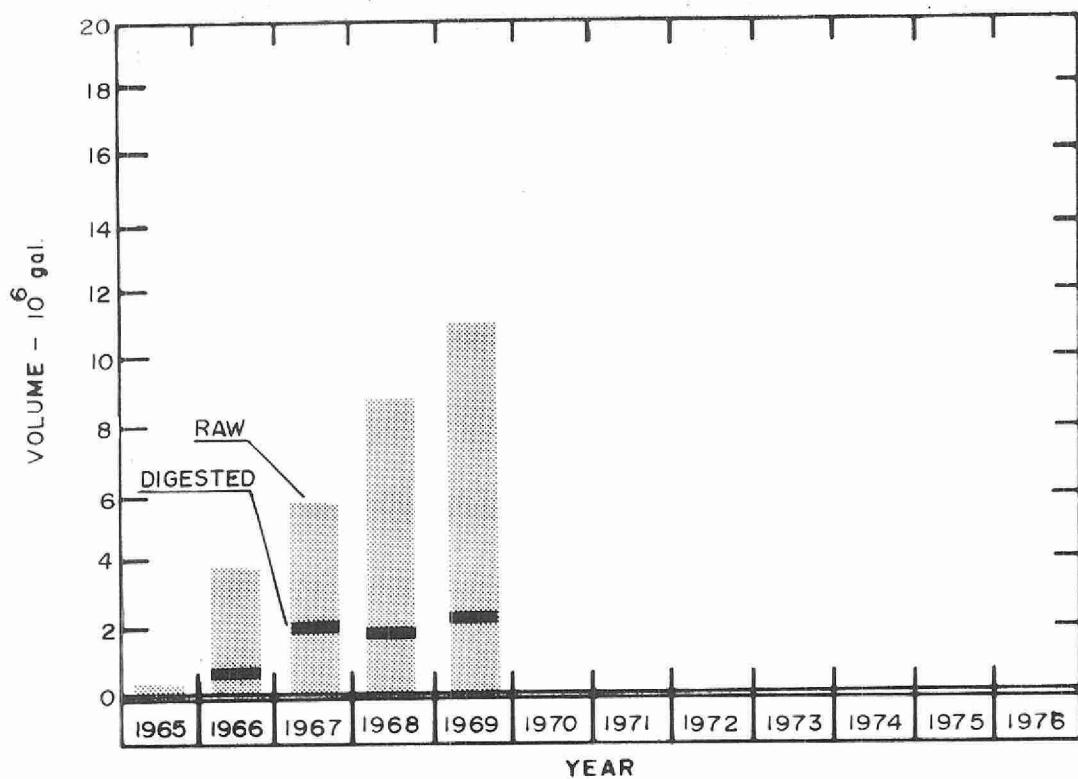


SUSPENDED SOLIDS

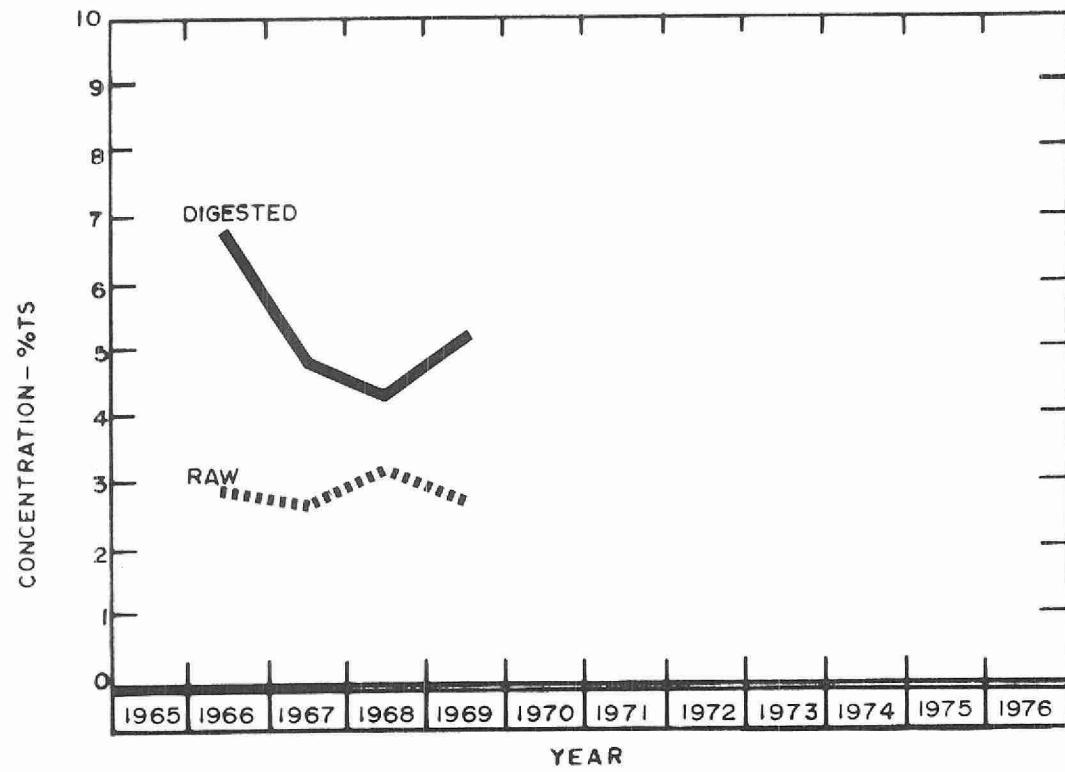


PLANT EFFICIENCY

MONTH	BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				GRIT REMOVAL cu. ft	
	INF. mg/l	EFF. mg/l	REDUCTION		INF. CONCN mg/l	EFF. CONCN mg/l	REDUCTION			
			%	10^3 pounds			%	10^3 pounds		
JAN	-	-	-	-	-	-	-	-	319	
FEB	400	49	88	250.	180	55	69	89.	310	
MAR	225	68	70	122.	220	65	70	120.	270	
APR	222	70	68	241.	350	70	80	384.	300	
MAY	220	50	77	158.	580	60	90	482.	200	
JUNE	-	-	-	-	-	-	-	-	180	
JULY	97	45	54	46.	100	27	73	65.	120	
AUG	185	35	81	134.	295	20	93	246.	120	
SEPT	392	49	88	282.	750	38	94	586.	240	
OCT	325	105	68	207.	550	60	89	460.	290	
NOV	162	60	63	95.	280	80	71	187.	220	
DEC	187	38	80	119.	185	47	74	110.	400	
TOTAL	-	-	-	-	-	-	-	-	2969	
AVERAGE	241	57	76	165.	349	52	85	273.	247	



DIGESTION



SLUDGE DIGESTION and DISPOSAL

MONTH	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT		SLUDGE DISPOSAL	
	VOLUME	TOTAL SOLIDS	VOL SOLIDS	VOLUME	TOTAL SOLIDS	VOL SOLIDS	VOLUME	TOTAL SOLIDS	DEWATERED	LIQUID
	10 ⁶ gal	%	%	10 ⁶ gal	%	%	10 ⁶ gal	%	cu yd	cu yd
JAN	1.01	-	-	.09	-	-	-	-	0	524
FEB	.81	3.3	-	.26	3.4	-	-	-	0	1540
MAR	1.02	2.4	-	.23	1.7	-	-	-	0	1347
APR	.86	3.2	54	.05	9.8	61	-	-	0	355
MAY	.89	2.1	-	.22	7.5	-	-	-	0	1308
JUNE	.88	-	-	.24	-	-	-	-	0	1445
JULY	.89	2.7	73	.25	4.3	60	-	-	0	1460
AUG	.89	1.5	77	.20	3.8	60	-	-	0	951
SEPT	.87	2.1	85	.23	6.6	57	-	-	0	1392
OCT	1.09	6.1	62	.20	4.4	48	-	-	0	1167
NOV	.98	1.9	66	.18	5.3	46	-	-	0	1081
DEC	.89	3.1	78	.17	5.2	47	-	-	0	992
TOTAL	11.08	-	-	2.33	-	-	-	-	0	13562
AVERAGE	.92	2.8	70	.19	5.2	50	-	-	0	1130

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